STATE OF UTAH
NATURAL RESOURCES & ENERGY
Oil, Gas & Mining

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Cleon B. Feight, Division Director

4241 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

March 31, 1983

Mr. Ralph Anderson, President
Crater Exploration, Inc.
2030 E. 4800 South, Suite 202
Salt Lake City, Utah 84117

RE: Permitting
CATO Placer Sand #1
ACT/019/017
Grand County, Utah

Dear Mr. Anderson:

The Division of Oil, Gas and Mining has made a preliminary review of the CATO Placer Sand #1 mine plan to determine compliance with the Utah Mined Land Reclamation Act of 1975, Title 40-8, Utah Code Annotated 1953, and the rules and regulations of same. This review was based on information submitted by Crater Exploration, Inc. on February 23, 1983.

In this review, certain necessary information was found to be lacking. The additional information that is needed to complete our review is detailed on the following pages. When the additional information has been received, the total plan can be assessed for compliance with the regulations. Please use the rule numbers as referenced in this document in organizing your response.

As is noted in the review, the mineral rights in the area of your proposed mine are being disputed by the State of Utah and the Bureau of Land Management which may present a problem with possible co-development of the property by another operator.

If you have any questions, or would like to meet with members of the review team, please contact me or Susan Linner of my staff.

Sincerely,

JAMES W. SMITH, JR.
COORDINATOR
MINED LAND DEVELOPMENT

JWS/SCL:lm

Enclosure

cc: Susan Linner, DOGM
Tom Portle, DOGM
Tom Tetting, DOGM
Wayne Hedberg, DOGM
Pam Grubaugh-Littig, DOGM

MINING AND RECLAMATION PLAN REVIEW
CATO PLACER SAND # 1
ACT/019/017

M-3 (1)(a)-(h) - PGL

The applicant should submit maps showing the total number of surface acres involved and showing existing affected lands and the names of surface and mineral owners. The map (with appropriate scale) should show the names and locations of all lakes, rivers, reservoirs, streams, creeks, springs, or other bodies of public water, roads, buildings, abandoned or active surface facilities and transmission lines on the land affected and within 500 feet of the exterior limits of the land affected.

M-3 (1)(a) - DWH

The total extent of projected surface disturbance must be indicated on the surface facilties map. It is unclear whether 2 acres or 10 acres (or somwhere in between) of placer claims will be disturbed annually. At a 10 acres per annum schedule and a 50 acre lease area the 20 year planned mine life doesn't make sense. Please clarify and provide more specific detail as to just what is being proposed.

Rule M-3 1(b) - TNT

The ownership of mineral rights along the strip of land between the Colorado and the point where the high water mark existed in 1898 is contested for these lands above Castle Valley. This land is jointly leased out by both the State and the BLM and will be until it is adjudicated. Until that time the operator must file and obtain the lease from the state as well as from the BLM. No private mineral leases are recognized. The operator must delineate and acknowledge the distinction of these mineral rights in the mine plan. Current filings for this property indicate the State has already leased it on February 16, 1982 to Willis Ingram (St. Met. Lease #39855 south 1/2 of Sec. 8).

M-3 (1)(c) - DWH

The detail of the minesite map is inadequate. It is not clear just what and where equipment and/or structures will be located on-site. The access road(s) are not indicated. Also, the sediment ponds may be located too close to the river. What extent of buffer zone will be maintained between the active operations and the river's edge? The Division recommends a 100 foot buffer strip. Where will the water source come from? The location should be indicated on the surface facilities map along with method of conveyance. A general schematic diagram of the surface facilities should be provided.

Rule M-2 (e) - DWH

The operator also states that the concentrate will be removed from the minesite to a private security site for chemical processing. How distant from the minesite will the chemical processing operation be located? Is this processing facility associated with or located on an active mine operation? If so, has this facility been permitted by the Department of State Health and/or this Division?

M-3 (1)(e)
M-10 (11) - DWH

The operator has not discussed how surface drainage and sediment loss will be controlled from the site pursuant to form MR-1, page 3, 13(E).

M-3 (1)(h)
MR-1, page 5, #15(D) - DWH

The applicant states that no chemicals will be used on-site other than biodegradable flocculents. What types of flocculents will be used?

M-3 (1)(h)
MR-1, #15, attachment #(1) - DWH

Applicant states that silt and clay will be collected in settling ponds. Any discharge will be from steeled, clarified ponds. The Division is assuming that this is a typo which should read sealed ponds(?). If this is not the case, please clarify. How will the ponds be sealed and with what material? Also, the Bureau of Water Pollution Control, Dept. of Environmental Health should be contacted with regard to the tailings pond design.

M-3 (2)(a,b) - DWH

It is unclear as to whether or not there currently is farm land under cultivation and/or grazing. If so, will this be continued during the life of operations? Is the post-mining land use the same as before mining?

M-3 (2)(c) - PGL

A more specific narrative of the manner in which the overburden, topsoil, and reject material will be deposited; i.e. depth of trench, length of conveyor, size of waste piles, etc., must be submitted.

How and where will composted trees and brush (question 20, p. 6 of MR Form 1) be disposed of?

Rule M-3 (2)(d) - PGL

The manner and extent of where grading, backfilling, compaction, etc. of the soil or fill will occur is desirable; please explain how it will be accomplished.

Rule M-3 (2)(e) - SCL

A complete revegetation plan should be submitted including: seed mix(es) and rate of seeding in pure live seed (PLS) per acre, or stocking rate (stems/acre) for shrub plantings; seedbed preparation; seeding and planting techniques; mulching, irrigation and fertilization methods, amounts and frequencies or duration. If there will be different techniques or seed mixes for different areas, this should be reflected by the success standards that are set. Season of seeding or planting should be indicated.

Revegetation species mix(es) should be consistent with the postmining land uses.

The applicant must explain what perennial grass and brush will be planted as per the criteria in the paragraph above. Will this (terraced) area be irrigated as well as the area planted to crops? More detailed informtion on areas to be planted in crops must also be submitted.

The application states that 10 acres will be disturbed each year and reclaimed each fall. What interim stabilization measures will be taken to protect "finished land"?

Rule M-3 (2)(f) - PGL

A timetable for the accomplishment of each major step in the reclamation plan must be submitted.

Rule M-3 (3) - SCL

The applicant should provide a map of adequate scale clearly and accurately delineating the yearly sequential disturbance that will occur on the minesite. The applicant must also submit typical pre and postmining contour cross-sections and a profile or cross-section of the mine access road.

Rule M-5 - PGL

A detailed cost estimate of the reclamation activities should be submitted. This estimate should reflect the cost to the State at any point in time in the event of abandonment of the operation. A form has been enclosed that will aid in this process.

Rule M-10 (12) - SCL

Baseline vegetation studies to determine the representative ground cover of surrounding native vegetation communities should be done to set a standard for revegetation success. If there is more than one vegetation type on the permit area, there may be more than one success standard, or an average value can be used for an overall standard. Important communities (i.e., riparian habitat) should be replaced as closely as possible, and may have separate success standards.

The applicant should delineate more clearly (preferably on a map) which areas are currently in native vegetation and which planted in grains, and which areas will be reclaimed to crops and which terraced and replanted with native vegetation.

If revegetated areas will be fenced to protect them from domestic or wild animals, design of such fences must be approved by the Division in advance.

Monitoring of revegetated areas during the bond release period should be discussed. This will include monitoring methods, timing and duration of monitoring, and methods of determining whether or not the success standard has been achieved. Funds for monitoring of revegetation success should be included in surety calculations.

If revegetation test plots will be used, the treatments to be utilized should be discussed, along with some discussion of how success of the plots will be used to determine final revegetation practices.

Rule M-10 (14)
M-3 (1)(f) - TLP

Contradictions as to the depth of available topsoil appear in the MRP. Under item 21 B, 25 feet of soil is said to be available while under items 23 B, 1 foot and 23 C, 15 inches are cited. Please clarify as described below.

A more specific soils map would be a great asset in planning a toposil management program. A map should be provided which relates soil series and/or complex and available soil depth to be salvaged. The applicant should relate the location of surface facilities and areas to be disturbed to this map. Please indicate the location of all sample points taken for each soil series on this map.

A sampling scheme should be conducted aimed at sampling enough points to prepare a soil isopach map or soil sripping map. In this way soil stripping can be done in such a way that soil layers which are detrimental may be identified and avoided.

Laboratory tests will aid in detecting any soil physical or chemical conditions which may be detrimental to plant growth and to provide any nutrients shown to be deficient. These tests should include, but not be limited to, soil texture, pH, organic matter, electrical conductivity, SAR (Sodium Absorbtion Ratio), available nitrogen, available phosphorus (percent or ppm), available potassium, soluble calcium, magnesium and sodium (expressed as meq/100 g).

From the application it is not possible to determine if adequate soil is available for reclamation. Please provide updated calculations based on the above testing and mapping program, and discuss the source and volume of deficit soil material which will be obtained (if applicable).

It is unclear to the reviewer as to the total acreage to be disturbed within the permit area. Under item 14 A, 2 acres of disturbance is cited while in attachment #1 a 10 acre/year maximum figure is given. A materials balance which includes the area to be disturbed, volume of soil removed and

volume to be returned would clarify this situation. In generating this balance sheet an estimate on the acreage to be disturbed on a year-by-year basis is needed. This should be tied in with estimates as to the acreage to be reclaimed per year (if any) and the duration of topsoil storage.

Storage and Protection of Topsoil

Rule M-10 (14)
M-3 (1)(g) - TLP

What measures will be employed to achieve adequate topsoil stockpile protection? Will drainage be diverted away from piles? Will berms be used to retain soil? Will terraces be employed on soil stockpiles? Will seeding and/or mulching be utilized or will other surface stabilizing agents or measures be used?

Once a stockpile is established, protected and revegetated, it is usually not desirable to disturb it prior to its redistribution. Given the sequence of activities and disturbance attendant to placer mining, how will stockpiling activities be correlated to stockpile locations given the desire to minimize the disturbance of existing, protected topsoil stockpiles? Which stockpiles will be increased in volume concurrent with mine development or will any stockpile(s) be static with regard to volume.

A. What is the anticipated final depth of each of the stockpiles?

B. What will be the probable dimensions of each stockpile at its greatest extent?

C. What will be the slope of the stockpiles? Will terraces be employed?

The applicant may best address these concerns by providing representative topsoil stockpile configurations and cross sections.

This information should be correlated with the submital of a best estimate on the amount of acreage to be disturbed on a year-by-year basis. This should be tied in with estimates of how much area will be reclaimed per year and how long topsoil will be stored.

The applicant must employ the soil tabulation chart (enclosed) or an equivalent means to keep a running total of acreage disturbed versus available soil for reclamation.

Contemporaneous Reclamation/Test Plots

Rule M-10 (12)
M-10 (14) - TLP

The applicant indicates (on page 10) that test plots will be initiated. What will be tested? Please provide details and objectives.

On attachment # (1) item 26, the applicant alludes to contemporaneous reclamation (reclamation shortly following mining) by indicting that topsoil will be replaced "3 to 4 weeks" after sand replacement over bedrock (A). Please expand on this approach to reclamation.

Soils testing must be done prior to any revegetation occurring. All tests should be performed prior to any revegetation attempts to determine if any soil amendments are needed.

The applicant currently states that specific fertilization applications will occur [page 8, item 23 (c)(3)].

What is the source of these recommendations? It would be more useful to test soil prior to revegetation efforts and amend the soils as per results of these tests. Sampling should include available nitrogen, phosphorous and potassium as well as pH and EC.

A "test plot" approach to revegetation (i.e., trying different soil treatments and vegetation treatments) could be undertaken since it appears that the area will be revegetated in small increments.

Topsoil Redistribution

Rule M-10 (14) - TLP

Please indicate all areas which will receive topsoil providing specific information as to the depth of replacement of topsoil by specific area.

Also, please specify season of year during which soil redistribution will occur.

What implements will be used to redistibute topsoil?

As previously indicated the applicant may wish to develop test plots to determine the feasibility of reclamation practices and get an early indication of problems. Using the test plot approach makes it easier to detect and remedy flaws in the reclamation plan. This approach greatly enhances the prospect of early bond retreival.

MR-1 Questions 9 & 12 - TNT

What is the relationship of DeMar Perkins to the companies involved in the proposed project?

40-8-13 (1) - DWH

The operator must furnish evidence in the form of acceptable insurance policies or other factual data that he will be financially responsible for payment of off-site public liability or property damage during mining operations.

40-8-17 (1)
MR-1, pg. 5, #16 - DWH

The operator states that four (4) second-feet of water are included with the property. The operator has not described what type of water right this is or where the water will be obtained (surface diversion, ground water well?). The operator may need to file for a change in water use application with the State Engineers Office, Division of Water Rights (i.e., agricultural to mining or industrial, as appropriate).